

Feb. 12, 1929.

1,701,875

A. H. DU GRENIER

COIN CONTROLLED MECHANISM

Filed May 27, 1926

2 Sheets-Sheet 1

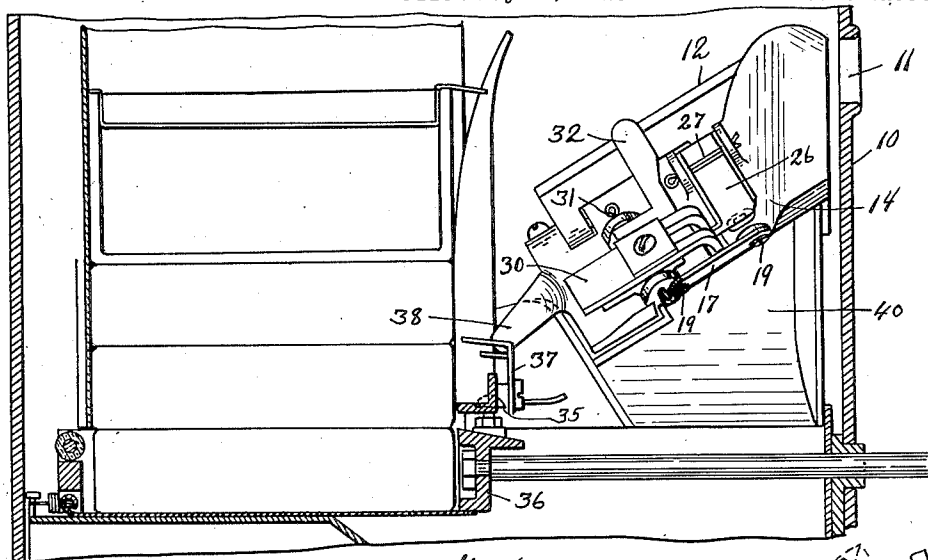


Fig. 1.

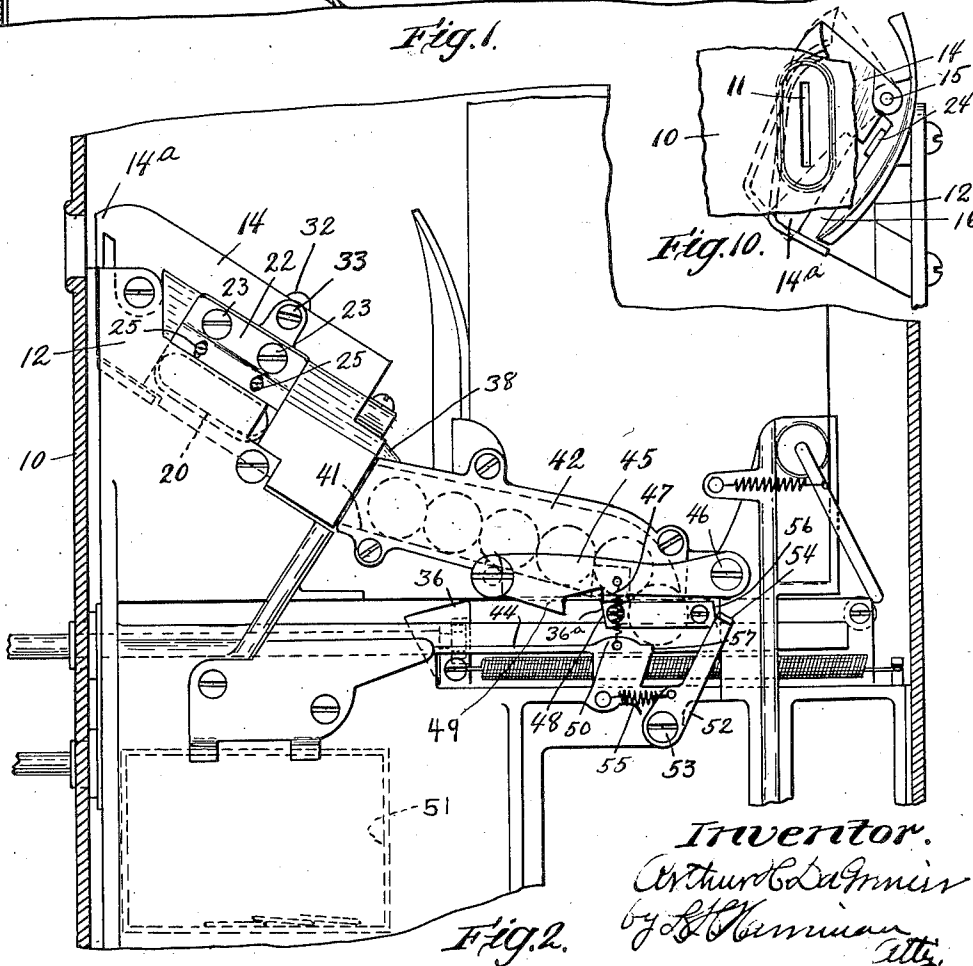


Fig. 2.

Fig. 10.

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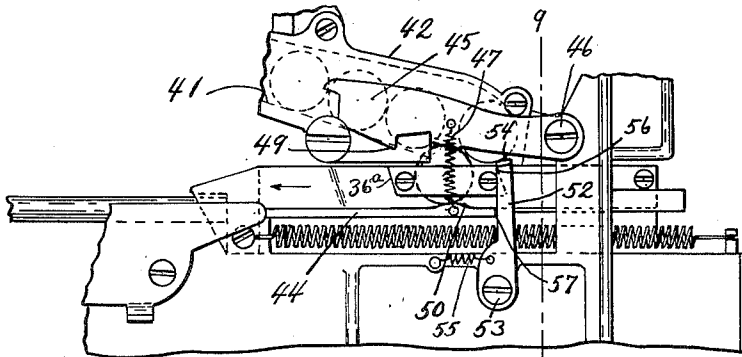


Fig. 3.

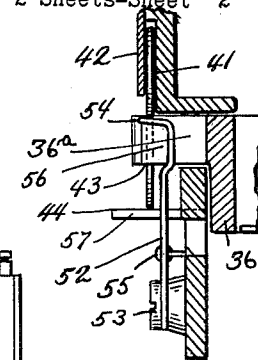


Fig. 9.

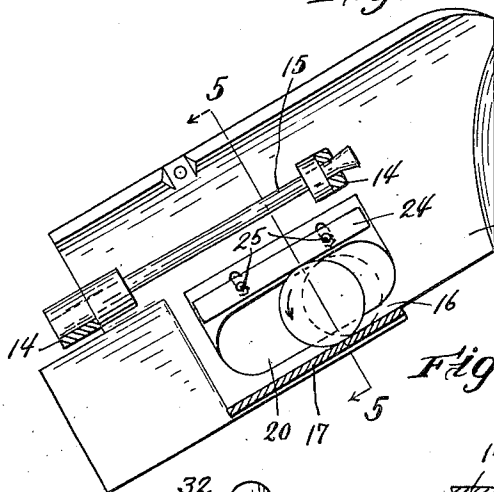


Fig. 4.

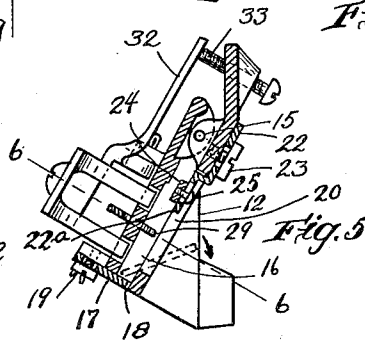


Fig. 5.

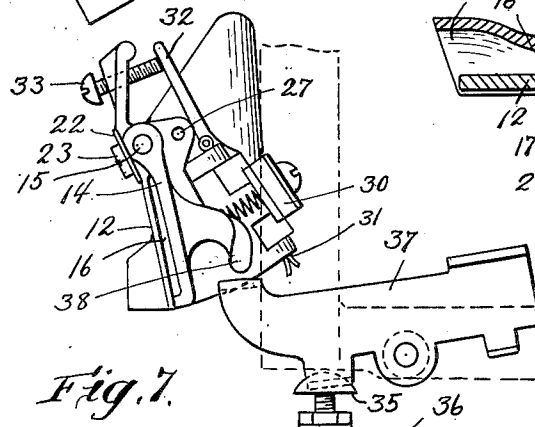


Fig. 7.

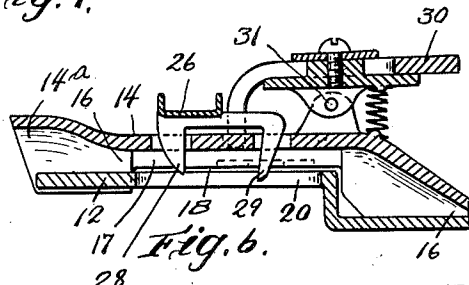


Fig. 6.

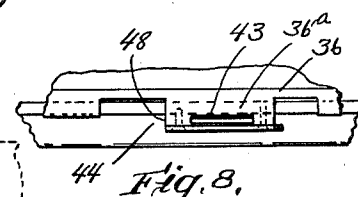
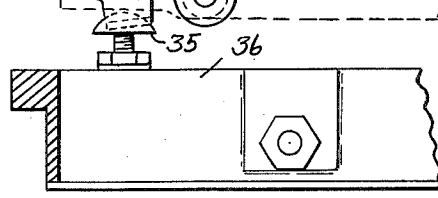


Fig. 8.



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UNITED STATES PATENT OFFICE.

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COIN-CONTROLLED MECHANISM.

Application filed May 27, 1926. Serial No. 112,011.

This invention relates to that class of coin controlled mechanisms which are primarily designed for use in connection with dispensing machines of the type shown in my pending application filed April 26, 1926, Serial No. 104,853 in which a delivery tray is moved reciprocally to deliver the articles, although said mechanism may be used in other connections.

While apparatus of this character has been produced which will test a coin or disk with practically perfect accuracy, yet, in the production of such machines in large quantities, for use under various conditions, considerations of economy in manufacture, durability, and freedom from operation difficulties become highly important, although the efficiency thereof as a coin testing means must be maintained as high as is practically possible.

Where the machine is designed to be operated by a dime, attempts have frequently been made to defraud the machine by the insertion of a cent which has been ground down somewhat on its edge and sides. As this operation is usually done by hand, the result is that, while, at certain points, the diameter is such as to permit insertion in the coin entrance slot, at other points the diameter is liable to be either greater or less than standard.

In machines of this type I have therefore found that it is principally necessary to provide against operation by disks which are of irregular diameter, or are of a diameter greater or less than standard, or of a thickness less than standard, or are magnetic, or have a central hole. It is also necessary that the disk which is inserted be returned, if the goods are not delivered.

In machines for dispensing packages of food, or other articles, it has also been found to be desirable to provide means whereby several coins may be inserted before the dispensing machine is operated, so that the latter may then be operated a number of times equal to the number of coins which have been inserted.

The objects of my invention are to provide a machine of the character above referred to which will accurately measure the diameter of the disk which is inserted at all points, and reject it if its diameter is substantially greater or less than standard at

any point and will also reject it if its thickness is substantially less than standard. Further, to provide a machine which will reject magnetic disks and washers and will permit the insertion of several disks and the subsequent operation of the dispensing machine a corresponding number of times. Also to provide a coin controlled mechanism which may be manufactured at a reasonable cost and which will be reliable in operation and unlikely to get out of order.

I accomplish these objects in the manner hereinafter described and illustrated in the accompanying drawing in which:

Fig. 1 is a vertical sectional view of a coin controlled dispensing machine embodying my invention and illustrating a portion of the coin controlled mechanism in side elevation.

Fig. 2 is a view in side elevation of the opposite side of said mechanism.

Fig. 3 is a similar view of the coin delivery portion thereof showing the parts in a different position.

Fig. 4 is a detail view of a portion of the coin rejecting means.

Fig. 5 is a sectional view on line 5—5 of Fig. 4.

Fig. 6 is a sectional view at line 6—6 of Fig. 5.

Fig. 7 is a view of the delivery end of the coin rejecting means.

Fig. 8 is a detail view of the coin carrier.

Fig. 9 is a sectional view at line 9—9 of Fig. 3.

Fig. 10 is a front elevation of the coin entrance portion of the machine partly broken away.

As shown in the drawings, the outer casing 10 is provided in its front side with a vertical coin or disk entrance slot 11, which opens to a receiving chamber, from which a passageway for the disks lead. One side of said chamber and passage comprises a fixed side plate 12, which is arranged to extend rearward and downward and is so formed and arranged that its inner surface is inclined laterally from the vertical. The other side of the chamber and passage comprises a movable side plate 14 which is suspended on the plate 12, by means of a pivot 15, and normally rests against its upwardly facing side. The front portion of the plate 14 is provided with an inclined

deflecting portion 14^a, which is arranged directly in the rear of the slot 11 in position to deflect a disk, inserted in said slot, laterally into the entrance to a disk passage 16, which is formed between the plates and has laterally inclined sides, as shown in Fig. 5, so that, as the disk passes down the same, it will be held in a correspondingly inclined position. A bottom plate 17 for said passage is mounted on the lower portion of the plate 14, and is provided with a straight edge which is held in parallel relation to the opposite side of the passage formed on plate 12 and at a distance therefrom, to form a slot 18, said plate 17 being adjustably mounted to permit the same to be set at a distance from the plate 12 which is slightly less than the thickness of the standard disk which the machine is designed to receive, the particular means for adjustment comprising screws 19 which pass through enlarged apertures in the plate 17, into plate 14. The fixed plate 12 is provided with an elongated opening 20, directly over the bottom plate 17, said opening extending for a distance approximating to the length of said plate 17, and means being provided for varying the width thereof, comprising a gage plate 22, which extends into the upper portion of said opening and is secured to the plate 12 by screws 23 passing through slots in the plate 22, permitting adjustment of the latter with relation to the bottom plate 17, the edge 22^a thereof being set parallel to plate 17 and at a distance therefrom which is slightly less than the standard diameter of the disk which the mechanism is designed to receive. An edge gage 24 is mounted on the upwardly, or inwardly facing side of the plate 22 and is connected thereto by screws 25 passing through slots in plate 22, permitting adjustment of gage 24 thereon to a position which is parallel to bottom plate 17 and at a distance therefrom just sufficient to permit a disk of standard diameter to roll down plate 17 without being intercepted by the gage 24. A narrow face is thus left between the lower edges of plate 22 and gage 24 which will be sufficient to retain a standard disk, but if the disk is of substantially less diameter than standard, it will fall through the opening 20, and if greater, it will be intercepted by gage 24. The length of the bottom plate 17, and the associated parts above described, is as great as one half a standard disk circumference, so that the diameter of a disk will be measured at all points between the gage 24 and bottom 17, as it rolls down the latter, and will be intercepted by the gage 24, or rejected through the opening 20, if it should be substantially oversize, or under size, at any diametrical point.

A combined retarding, deflecting and washer intercepting device is provided, which

comprises an arm 26 suspended by a pivot 27 on the plate 14 and is provided with a retarding and deflecting finger 28 and a washer intercepting finger 29, which normally project into the disk passage 16 opposite the opening 20. The finger 28 has an oblique front edge, which the disk engages, as it rolls down the passage, and is retarded in its movement and deflected towards the opening 20 with sufficient force to cause it to pass through said opening, if its diameter, at any point, is sufficiently less than standard to permit the same to pass beneath the edge 22^a. The retarding action on the disks also enables the finger 29 to enter a central hole in a disk, if it should have one, with greater certainty.

A magnet 30 is pivoted at 31 on the plate 14 and is normally held so that its poles are flush with the adjacent side of the disk passage and is adapted to be swung by the engagement of an arm 32 thereon with a stop screw 33 on plate 12, so as to disengage a magnetic disk therefrom, when plate 14 is swung upward. The particular means shown for swinging the plate 14 upward, to return an intercepted disk, comprise a screw head 35 on the reciprocally mounted tray 36, of the dispensing machine, in connection with which the coin controlled mechanism is used, said head being arranged to engage a lever 37, mounted on the frame, when the tray is drawn forward and swing the same into engagement with an arm 38, on plate 14, causing the latter to be swung upward so as to return any disks which may have been intercepted by any of the means above described. An inclined plate 40 is provided beneath said means for directing all intercepted disks, or disks which may fall through the opening 20, or slot 18, into a receptacle where they may be retrieved.

As previously described, the entrance slot 11 is located in front of the deflecting portion 14^a of the pivotally suspended plate 14. This arrangement is particularly advantageous for the reason that if a disk which has been inserted is intercepted by any one of the intercepting means with which the plates 12 and 14 are provided and it should be attempted to dislodge the disk, so that it will pass on down the passage, by inserting a long thin instrument thru the slot 11, the instrument would be engaged with the deflector plate 14^a causing the plate 14 to be swung aside, so that the intercepted disk would be returned to the person inserting it.

The lower end of passage 16 is connected to an elongated disk storage passage, or chamber 41, formed within a casing 42, so that disks not previously intercepted will be delivered thereto, said chamber having upright sides, spaced sufficiently to permit a single disk to pass therebetween, but too

narrow to permit two disks to overlap, and a bottom, for the edge thereof, which declines from its front end to an opening at its rear end. The tray 36 has a projection 36^a on one side thereof in which a slot 43 is formed, which extends from top to bottom thereof and is adapted to contain a single disk only and to permit the disk to pass downward therethrough, as shown in Fig. 8. A horizontal shelf 44 is formed on the casing directly beneath said projection, and, in the rearmost position of the tray, the slot 43 will be held in register with the discharge opening at the rear end of chamber 41, the arrangement being such that, when a single disk is delivered to the chamber 41, it will roll down therein and pass through its discharge opening into the slot 43 and come to rest on the shelf 44, in which position the upper edge portion of the disk will be flush with the upper surface of the projection 36^a, so that, if a second disk should be delivered to the chamber 41, it will be supported by the disk in the slot 43, and prevented from passing through the discharge opening of chamber 41, as shown in Fig. 9. If other disks are then inserted they will accumulate in chamber 41, being held edge to edge therein, as shown in Figs. 2 and 3.

A locking latch 45 is pivoted at 46 on the frame and is normally held by gravity and a spring 47 in position to lock the tray against forward movement, after it has been moved forwardly to a sufficient extent to lift the plate 14 and return intercepted disks, an abutment 48 being provided on the projection 36^a of the tray, which engages the hook 49 of the latch 45. If a disk of standard diameter has been delivered to the slot 43, as the tray is drawn forward, the disk will be moved forward on shelf 44, while thus held on edge, and will be forced over a rounded projection 50, which is formed on the shelf, so that the disk will be lifted and its upper portion will be engaged with the latch 45, causing the latter to be lifted, so that its hook 49 will be moved out of the path of movement of the abutment 48, thereby permitting the tray to be drawn forward so as to deliver the goods therein, and, at the same time, the disk will be moved forward over the entrance to a coin box 51, so that it will fall therein from slot 43, and then the parts will be returned to normal position.

An arm 52 is mounted on a pivot 53 on the frame and has a finger 54 extending at right angles thereto at its upper end, as shown in Fig. 9, and a spring 55 normally holds said arm in engagement with an abut-

ment 56 on the tray, as shown in Fig. 2, so that, when the latter is moved forward, the finger will be swung forward until it becomes engaged with a shoulder 57 at the rear end of shelf 44. As the arm 52 is advanced, its finger 54 will be carried beneath the next disk, which may have been inserted, and which will be supported by the disk in the carrier slot 43, and by the time the disk in slot 43 and the projection 36^a have been moved from beneath the disk, and the arm 52 has been permitted to swing against the shoulder 57, the finger 54 will have been carried beneath the middle of the disk, so that it will be prevented from falling from the chamber 41, as shown in Fig. 3. The arm 52 will remain in this position until, on the return movement of the tray, it is reengaged and pushed back to its normal position of Fig. 2, permitting the disk, which it was supporting, to fall into the slot 43.

With the above described arrangement it will be apparent that standard coins may be inserted in the coin passage until it is filled up to the point where they would be returned to the purchaser, and then the tray may be successively operated to deliver goods until all the coins which were held in the chamber 41, have been successively delivered to the coin box. It will be understood that unless two or more coins are inserted without operating the machine to deliver goods, the arm 52 will be functionless.

I claim:

In a disk controlled mechanism, a casing having a disk-receiving passage, said passage having a straight declining bottom down which the disk may roll while supported by one side of said passage, said side having an elongated opening and a gage plate mounted thereon having a straight lower edge and extending into the upper portion of said opening, said plate being arranged for adjustment with relation to said bottom, to hold its lower edge in parallelism therewith and at a distance therefrom less than the standard diameter of the disk, an edge gage mounted on the inner side of said plate arranged for adjustment thereon, to hold its lower edge in parallelism with said bottom and at a distance therefrom corresponding to said standard diameter, and yieldable disk-engaging means extending into said passage in position to deflect the disk against the inner side of said gage plate.

In testimony whereof, I have signed my name to this specification.

ARTHUR H. DU GRENIER.